

**Land Health Evaluation Report**  
**Big Pipestone Creek Allotment**  
Bureau of Land Management  
Butte Field Office

## **Introduction and Assessment Process**

This report documents whether land health standards were achieved for the Big Pipestone Creek Grazing Allotment administered by the Bureau of Land Management's Butte Field Office. Standards for Rangeland Health were evaluated utilizing an interdisciplinary team (ID team) of resource specialists.

Rangeland Health Standards for Western Montana are described in detail in the Record of Decision (ROD) issued for Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Montana, North Dakota and South Dakota (August 1997). The preamble of the Western Montana Standards states: "The purpose of the S&Gs (Standards and Guidelines) are to facilitate the achievement and maintenance of healthy, properly functioning ecosystems within the historic and natural range of variability for long-term sustainable use." Standards are statements of physical and biological condition or degree of function required for healthy sustainable lands. Achieving or making significant progress towards these functions and conditions is required of all uses of public land as stated in 43 CFR 4180.1.

This report contains an evaluation of each of the five standards:

- Standard #1 Upland Health
- Standard #2 Riparian/Wetland Health
- Standard #3 Water Quality
- Standard #4 Air Quality
- Standard #5 Biodiversity

Available monitoring data from both upland and riparian sites, existing inventories, historical photographs and standardized methodology are used by an ID team to assess condition and function. Condition/function declarations regarding are expressed as:

- Proper Functioning Condition (PFC)
- Functioning at Risk (FAR), which is assigned a trend of up, down, static or not apparent
- Nonfunctioning (NF)

Standards are met when conditions are at PFC or FAR with an upward trend. This is dependent on scope and scale. The BLM will consider the information contained in this report, along with public scoping and other sources of information, to make a determination regarding causal factors and courses of action to be analyzed in a National Environmental Policy Act (NEPA) document.

## General Allotment Summary

**Allotment Name/Number:** Big Pipestone Creek 20230

**Current Management Category:** I (Improve)

**Location:** Jefferson County, T2N, R6W, Sec. 11-14, 23, and 24; and T2N, R5W, Sec. 7, 8, 17, 18, and 20

**Public Acres:** 4,357

**Season of Use:** May 15 – June 22

**Public Animal Unit Months:** 150

**Assessment Date/Period:** June 2-4, 9, and 10, 2009

The Big Pipestone Creek (BPC) allotment is located approximately 10 miles northwest of Whitehall, MT. Elevation on BLM land ranges from approximately 4,800 to 5,800 feet. Common landforms in the allotment include ridges, hillsides, and escarpments. Slopes can range from 0-70%. The predominant plant communities are big sagebrush-steppe and mixed conifer (Douglas fir and Rocky Mountain juniper) forest/woodland. Due to lack of fire, conifers continue to encroach and convert the sagebrush-steppe.

BPC allotment is divided into two pastures, Horseshoe and Dry Creek. Livestock are managed under a spring two-pasture rest-rotation system for approximately 120 cow/calf pairs. Unfortunately, the past problems associated with grazing this allotment have not been resolved, making it difficult to manage under the prescribed grazing system. Please refer to the Allotment Profile and Management section in the attached Rangeland Health Assessment, Big Pipestone Creek Allotment Summary for a detailed description of the history and issues surrounding this allotment.

Summary of Standards Achieved						
--Yes, No, N/A (Not Applicable)--						
Allotment Name	Allot #	1. Upland	2. Riparian	3. Water Quality	4. Air Quality	5. Biodiversity
Big Pipestone Creek	20230	No	Yes	No	Yes	Yes

## Rangeland Health Standards Evaluation and Rationale

The issue of scope and scale must be kept in mind when evaluating each standard. It is recognized that isolated sites within a landscape may be Functioning at Risk (FAR) and not meeting the standards; however, considering broader scope and scale, the area may be deemed in Proper Functioning Condition (PFC). Likewise, isolated sites may be in PFC, but, overall, the resource within the allotment or area could be FAR and not meeting standards. Therefore, no single indicator provides sufficient information to determine rangeland health. Indicators are used in combination to provide information necessary to make rangeland health determinations.

**Western Montana Standard #1**  
***“Uplands are in Proper Functioning Condition”***

**Finding**            Standard is not met

**Rationale**

Uplands were assessed in the field at BPC allotment during the first two weeks of June, 2009. The assessment evaluated five representative eco-sites for land health indicators and included observations through a general allotment walk-through. NRCS/SCS ecological/range site reference guides were used to identify departures from the expected conditions at the eco-site and the other observed areas. These departures were then assessed along with data from seven vegetation trend monitoring transects established at the allotment.

The assessment area’s geomorphology contains actively decomposing granite that is highly erosive. Signs of more active erosion and deposition were therefore expected from this natural process; however, the amount of soil erosion and deposition observed appeared higher than anticipated in many areas along off-highway vehicle (OHV) routes, stream crossings, in gullies/alluvial fans, and some areas where conifers had encroached and shaded out the pre-existing vegetation. Pedestals were common throughout the allotment along with some water-flow patterns but the majority appeared to be remnants from historical events. The remaining soils outside of these disturbance areas appeared fairly stable across the landscape.

The hydrologic function was inadequate because water capture and infiltration over the majority of the allotment was presumed to be less than expected due to the departure from the expected plant community. Conifer (i.e. Rocky Mountain juniper and Douglas fir) encroachment into the sagebrush-grassland was observed across the allotment, which significantly impacts soil moisture availability. Higher than expected densities and cover of conifers has contributed to a decline in production of grasses and forbs as observed at the ecosite evaluation areas and across the allotment. Encroachment reduces site stability and productivity by shading out sunlight, reducing litter cover, decreasing water infiltration, and increasing areas of bare soil and erosion. Big sagebrush was also much denser than expected and reduced the density of herbaceous species but was being encroached in turn by conifers.

The density and distribution of bluebunch wheatgrass was reduced from what was expected on many parts of the allotment from a dominant to a sub-dominant species. All five ecosite evaluation areas and half of the trend monitoring transects reflect that departure. Additionally, species such as blue grama, dense clubmoss, and Sandberg bluegrass were more prevalent than expected in areas where they should have been smaller components.

The long-term vegetative trend, based on the seven current vegetation monitoring transects at BPC allotment, is ambiguous when the data are considered cumulatively. Together, they do not show a clear positive or negative trend. Species have fluctuated in frequency, cover, and composition over the roughly 30-year monitoring period. The key species for example, bluebunch wheatgrass, has increased at some transects and decreased at others. Big sagebrush, however, has been increasing at most transects and is generally a dominant or co-dominant species, which is a notable departure from the expected plant community under a normal fire regime. Even though most transects have not detected conifer encroachment, the available multi-year transect photographs do however show an increase in conifer cover over the past 30 years across the landscape.

Litter cover for site protection appeared sufficient in some areas and lacking in others depending upon that sites herbaceous component. The frequency and size of bare areas also appeared to correlate in some areas with the degree of conifer encroachment.

Noxious weeds and non-native invasive species were identified throughout the allotment. Identified species included knapweed, cheatgrass, mullein, houndstongue, dandelion, leafy spurge, and yellow toadflax. Knapweed and Cheatgrass were common in the uplands adjacent to Homestake Creek and Dry Creek riparian areas. Cheatgrass was also prevalent along OHV routes.

Overall, due to conifer encroachment, areas of accelerated erosion, and noxious weeds/non-native invasive species, it was determined that the uplands do not meet Montana land health standards.

**Western Montana Standard #2**  
***“Riparian and Wetland Areas are in Proper Functioning Condition”***

**Finding**          Standard is met

**Rationale**

Twelve riparian reaches at Big Pipestone Creek allotment, previously rated as functioning-at-risk or nonfunctioning, were re-evaluated using the methodology from the Riparian Area Management guidebook (lotic areas). Reaches J-31-1, J-31-2, J-31-3, J-34, J-35, and J-36-1 were determined to be in proper-functioning-condition. Reach J-90-3 was determined to be functioning-at-risk with an upward trend. After inspecting reaches J-37, J-90-1, J-90-2, J-118-2, and J-119, it was determined that they lacked adequate components for riparian classification and were not evaluated for functioning.

Riparian reaches J-31-1, J-31-2, and J-31-3 are located along Homestake Creek in a steep rocky gorge with little access. All of the hydrological, vegetation, and erosion/deposition criteria in the lotic riparian checklist were either met or not applicable. Sediment deposition did appear excessive in spots but it was thought to be more from the high

amount of naturally decomposing/eroding granite from the surrounding landscape.

Reach J-34 is located along Halfway Creek. All vegetation criteria were met during the riparian evaluation. Most hydrological and erosion/deposition criteria were met. Departures from the expected condition were a result of upland erosion from adjacent roads and stream crossings observed along the reach northeast of the railroad trestle. In addition to the riparian assessment, data was also reviewed from one vegetation coverboard plot (J-34-1) read in 1982, 1990, and 2008. The data shows very notable decline in riparian shrubs and trees (i.e. Sitka alder, redosier dogwood, and currant) and an increase in Rocky Mountain juniper. Despite the additional sediment being supplied and shift in riparian species composition, the reach was still determined to be in proper-functioning-condition, overall.

Reach J-35 is located along Beefstraight Creek. All vegetation and deposition/erosion criteria were met during the riparian evaluation. Only one hydrological criterion was not met due to sedimentation from an OHV creek crossing and adjacent alluvial fans. Overall, despite the additional stream input, the reach was still determined to be in being in proper-functioning-condition.

Reach J-36-1 is located along Big Pipestone Creek. The reach is in a steep rocky gorge, dominated by boulders that consist of decomposing granite. Access is very limited. Riparian vegetation only exists where boulders are lacking. All hydrological, vegetation, and deposition/erosion criteria were met during the riparian evaluation. The reach was determined to be in proper-functioning condition.

Reach J-90-3 is located along Dry Creek. There was a mixed result of hydrological, vegetation, and deposition/erosion criteria that were either being met, not met, both, or not applicable during the riparian evaluation. Dry Creek had an intermittent-interrupted flow with very little water. Riparian areas were also intermittent. Those intermittent areas contained adequate riparian species and age diversity; however, it is being threatened by the noxious weeds/non-native invasive species that were present along the reach, which included houndstongue, knapweed, cheatgrass, yellow toadflax, and leafy spurge.

It was determined that vegetative cover was inadequate to protect banks during high flow events but conversely, where riparian vegetation was present, the streambank was comprised of species with root masses that would withstand high flow events. Conifers were cut from the reach and placed within the channel approximately eight years ago and were contributing to riparian improvement. Observed sedimentation in the lower portion of the reach was excessive with contributions from non-channel areas. OHV trails in and adjacent to the reach were also facilitating erosion and deposition. Even though the riparian area did not appear to be widening within its potential, there were aspen, cottonwood, and/or willow seedlings/suckers observed in the reach where riparian vegetation was present. Overall, the system was determined to be functioning-at-risk but with an upward trend.

**Western Montana Standard #3:**  
***“Water Quality Meets State Standards.”***

**Finding**        Standard is not met

**Rationale**

Big Pipestone and Halfway Creeks are two water bodies within the allotment on the Montana 303 (d) list as impaired. TMDLs have not been established for either water body.

The beneficial uses that Big Pipestone Creek supports include agriculture and drinking water. The creek only partially supports aquatic life, cold water fishery, industrial, and primary contact recreation. Probable sources of impairment for Big Pipestone Creek are listed as agriculture, channelization, construction, grazing sources, habitat modification, highway maintenance/runoff, highway/road/bridge construction, hydrological modification, logging road construction/maintenance, municipal point sources, removal of riparian vegetation, sediment re-suspension, and silviculture. Probable causes are listed as bank erosion, channel incisement, fish habitat degradation, nutrients, other habitat alterations, riparian degradation, suspended solids, and thermal modifications.

The beneficial uses that Halfway Creek supports include agriculture, industrial, primary contact recreation, and drinking water. The creek only partially supports aquatic life and cold water fishery. Probable sources of impairment for Halfway Creek are listed as riparian/shoreline grazing, loss of riparian habitat, and unspecified unpaved road/trail. Probable causes are listed as sedimentation/siltation and altered streamside or littoral vegetative covers.

During the BPC allotment assessment, it was determined that the overall conditions of the riparian areas were not impairing water quality. Observed spring sources were protected by exclosures and well vegetated with no soil movement. Creek sedimentation was observed, primarily in Homestake, Dry, and Beefstraight Creeks, due to erosion from adjacent gullies/alluvial fans, historical placer mining sites, and/or roads/trails; however, stream sedimentation also appears to be from the high amount of naturally decomposing/eroding granite in the surrounding landscape. Since TMDLs have not been established, it is unknown whether the additional sediment is impairing water quality.

Due to the 303(d) listing of Big Pipestone and Halfway Creeks in BPC allotment, it was determined that the water quality does not meet Montana land health standards.

**Western Montana Standard #4**  
*“Air Quality Meets State Air Quality Standards.”*

**Finding** Standard is met

**Rationale**

Air quality data was not collected within BPC allotment; however, observed vegetation was not dust covered and there was no impairment of visibility.

**Western Montana Standard #5**  
*“Provide habitat as necessary, to maintain a viable and diverse population of native plant and animal species, including special status species.”*

**Finding** Standard is met (but with reservations).

**Rationale**

The following indicators were used to assess whether existing habitat conditions are at a condition to support viable and diverse populations of native plant and animal species, including special status species:

- Plants and animals are diverse, vigorous, and reproducing satisfactorily
- Noxious weeds are absent or insignificant in the overall plant community.
- Spatial distribution of species is suitable to ensure reproductive capability and recovery.
- A variety of age classes is present.
- Connectivity of habitat or presence of corridors prevents habitat fragmentation.
- Diversity of species (including plants, animals, insects, and microbes) are represented.
- Plant communities in a variety of successional stages are represented across the landscape.

A variety of native wildlife species are represented on the allotment. Big game including moose, elk, and deer are present; small mammal burrows were noted; red-tailed hawks and numerous passerine species were seen during the allotment evaluation; records indicate reptile and amphibian species have been found on or near the allotment; numerous insect and arachnid species were seen. Riparian area health has generally improved since it was last assessed. Wildlife appears to be healthy, diverse, and reproducing satisfactorily. Interstate 90 presents a significant barrier to wildlife movement to the south, but the allotment is connected to large areas of habitat on the north, east, and west.

Native plant species are numerous and diverse across the allotment. Healthy bitterbrush and mountain mahogany, important browse species, were noted in places. However, as discussed in the Standard 1 section, noxious weeds, invasive species and conifer

expansion are significant problems in the BPC allotment. Due to Standard 1 not being met because of these factors, Standard 5 could be considered to be in a downward trend, or functioning at risk. Currently native species are maintaining health and reproduction, but significant ecosystem changes can be expected if conifers and undesirable nonnative plants are allowed to continue their expansion.

## **Preliminary Identification of Causal Factors and Recommendations**

Based on the field review and observations, it appears the following factors may be contributing to land health standards not being achieved:

- Wildfire suppression resulting in a departure from the historical fire disturbance regime that has altered the biotic integrity, hydrology, and soil/site stability.
- Noxious weeds/invasive non-native plant infestations.
- OHV use on highly erodible soils.
- Transportation of weeds by OHVs.

Final determinations will be made upon assessment of further information. It should be noted that if changing a current management or use will not result in progress toward meeting the standards, then the current management or use should not be considered a significant causal factor.

The following actions may be necessary in order to make significant progress in achieving the Western Montana Standards for Rangeland Health:

- Remove conifers encroaching into sage-brush grasslands.
- Place cut conifers in gullies/alluvial fans where excessive erosion is occurring to help store eroded silt/sand and slow its release into adjacent creeks.
- The BLM has previously taken steps to address sedimentation of the creeks within the allotment by closing unauthorized OHV trails on BLM administered land, establishing legal trails, building a bridge across Big Pipestone Creek, and monitoring areas of concern. These steps should continue further by reevaluating OHV routes for erodability and sedimentation issues. Priority should be given to areas with TMDLs, OHV stream crossings, and steep routes in or adjacent gullies/alluvial fans where there is sediment delivery into creeks.
- Prioritize weed treatment efforts at Big Pipestone Creek allotment along OHV routes and Dry Creek. Management of weeds along Homestake Creek would be difficult and meet with little success due to the inhospitable climate for current bio-controls and accessibility for consistent mechanical treatments.
- Identify and reclaim abandoned placer mine sites that are releasing sediment.

## **How This Information Will Be Used**

If the information in this Evaluation Report indicates that the allotment meets the Western Montana Standards for Rangeland Health, BLM will issue grazing decision(s) (subject to protest and appeal) to renew or issue associated grazing authorizations as necessary, with the appropriate level of NEPA documentation and public involvement in accordance with CEQ guidance and BLM direction. No additional final determinations are necessary.

For allotments not meeting the Western Montana Standards for Rangeland Health, BLM will use the information in this Evaluation Report along with any other relevant data or information, including input from interested parties, to make a final determination whether or not current grazing management or levels of use are a significant causal factor in not meeting rangeland health standards on the allotment. If current grazing management and/or levels of use appear to be a significant causal factor, BLM will use the NEPA process to document the affected environment and develop alternatives to propose changes to grazing management to facilitate achieving rangeland health standards. These changes or actions will be addressed with an appropriate level of NEPA documentation and public involvement in accordance with CEQ guidance and BLM direction. A Final Determination Document will be prepared in concert with the NEPA analysis and associated decision(s). Pursuant to 43 CFR 4180.2(c), the Authorized Officer shall take appropriate action as soon as practicable, but not later than the start of the next grazing year upon determining that existing grazing management practices or levels of grazing use on public lands are significant factors in failing to achieve the standards. Any grazing decisions, however, are subject to protest and appeal.

If current grazing management or levels of use do not appear to be a significant causal factor, changes or activities in other program areas or activities that appear to be significant causal factors may or may not be undertaken through a NEPA process, dependent on program and office priorities. However, a Final Determination Document will be prepared to document and outline the significant causal factors.

## **Involvement of Permittees, State Agencies and Interested Publics**

The following people/organizations were solicited by mail to see if they had interest in the 2009 Rangeland Health Assessment for Big Pipestone Creek allotment: MT Fish, Wildlife, and Parks, Western Watersheds Project, Beaverhead-Deerlodge National Forest, Helena National Forest, MT Department of Natural Resources and Conservation, and the Big Pipestone Creek allotment grazing permittee. Only the grazing permittee's advisor, Bob Neery, expressed interest and joined the interdisciplinary team during the second week of the field evaluation.

## BLM Staff Participants

The following BLM staff participated in the preparation of this report:

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